

AMENDMENT TO THE CLAIMS:

1. (currently amended) A process for measuring and monitoring motor systems, said process comprising:

providing a motor system having at least one component selected from a stator and an armature, said at least one component connected to at least one electrical wire;

incorporating at least one ~~means for data measurement~~ fiber optical cable with said at least one electrical wire, the fiber optical cable is provided with at least one physical parameter sensor and is embedded in an electrical insulation coating surrounding at least one electrical wire;

collecting data with said at least one fiber optical cable ~~means for data measurement~~; and

transferring said collected data to a data collection station.

2. (canceled)

3. A process according to claim 2 wherein said fiber optical cable ~~means for measuring data~~ is encapsulated and attached to said electrical wire by covering or coating the electrical wire and the means for measuring data with an insulation material.

4. (canceled)

5. (currently amended) A process for measuring and monitoring motor systems, said process comprising:

providing a motor system having at least one motor component selected from a stator and an armature, said at least one component connected to at least one electrical wire;

providing at least one means for data measurement wherein said means for data measurement comprises a fiber optical cable;

connecting said at least one means for data measurement with said at least one motor component;

collecting data with said at least one means for data measurement; and

transferring said collected data to a data collection station.

6. (original) A process according to claim 5 wherein said means for measuring data is

contained within a tube.

7. (original) A process according to claim 6 wherein said motor component is a stator and said tube is wound in said stator with said electrical wire.

8 (canceled)

9. (canceled)

10. (previously presented) An apparatus for measuring and monitoring motor systems comprising:

a motor system having at least one motor component selected from a stator and an armature, said at least one component connected to at least one electrical wire:

an optic fiber wound around said electrical wire;

means for collecting data with said optic fiber; and

means for communicating said data to at least one sensor located outside said motor.

11. (previously presented) The apparatus according to claim 10 wherein said means for collecting data is an optic fiber wrapped around said electrical wire.

12. (previously presented) The apparatus according to claim 11 wherein said means for measuring data is encapsulated and attached to said electrical wire by covering or coating the electrical wire and the means for measuring data with an insulation material.

Claims 1, 3, 5-7, and 10-12 remain in the present application. The independent claims, claims 1, 5, and 10 are rejected under 35 U.S.C. §102(b) over McCain et al., US patent 4,370,098. Dependent claims are rejected over McCain et al. under 35 U.S.C. §103(a).

The above amendment also corrects errors objected to in the final rejection dated October 20, 2003.

Claim 1 is above amended to require that a fiber optical cable be provided with at least one physical parameter sensor and that it be embedded in an electrical insulation coating surrounding an electrical wire of the motor. McCain suggests monitoring an electrical motor by sensors that are remote to the electrical motor. Clearly, the limitations of embedding an optical cable in insulation around a wire in the motor is not taught or suggested by McCain and this rejection is therefore respectfully traversed and allowance thereof is respectfully requested.

Claim 5, as above amended requires that a wire in either the stator and/or the armature be provided with an fiber optical cable for data measurement, and that data measured by the fiber optical cable be collected and transmitted to a data collection station. McCain only suggests remote monitoring. Monitoring at the point of the stator or armature is not taught or suggested by McCain and this rejection is therefore respectfully traversed and allowance thereof is respectfully requested.

Claim 10 claims an apparatus for monitoring a motor wherein the motor is provided with a stator and an armature, with at least one of the stator and armature having a wire, and an optical fiber is wound around the electrical wire; a means for collecting data from the optical fiber; and a means for communicating the data to at least one sensor located outside of the motor. Again, McCain only suggests remote monitoring. Monitoring at the point of the stator or armature is not taught or suggested by McCain and this rejection is therefore respectfully traversed and allowance thereof is respectfully requested.

Rejection of dependent claims are traversed for the same reason that rejection of the independent claims are traversed. Wrapping an optical fiber around wires of a motor, or embedding an optical fiber in electrical insulating material is not suggested by McCain, or the other references of record, and this arrangement is effective to monitor internal conditions of electrical motors. As stated on page 2 of the specification:

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--This invention solves the problem of monitoring internal electrical motor parameters. For example it is often useful from both a design and development prospective as well for operational control, safety, and extending motor life, to monitor certain internal parameters of an electric motor. This invention also allows parameters to be measured along multiple nodes along the axis of the motor as well as at different radial positions in the motor. These variables give useful insight to heat rise, heat flux, hot spots, and the subsequent heat profiles in different motor designs, as well as offering an intimate knowledge of the motors internal conditions of pressure and vibration, and stator movement under during actual running and operation of the electrical system.

Electrical motor performance and life cycle are functions of these internal conditions, which the invention monitors. Therefore, this invention's ability to monitor these conditions in electrical motors allows for improvements and or changes in design and operations to be made and then confirmed via the internal monitoring offered by this invention.--

McCain infers internal conditions based on remotely measured parameters, and does not monitor internal conditions according to the present invention. These important advantages of the present invention are not shared the references of record.

The rejections each being traversed, passage of the application to issuance is respectfully requested.

Respectfully submitted,

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